## REMARKS

The Examiner has rejected claims 1-11 and 13 under 35 U.S.C. § 103(a) of which claims 1 and 13 are the only independent claims. Claims 1, 2, 5, and 13 stand rejected as being unpatentable over Yeuan, U.S. Patent No. 6,486,607 (*Yeuan*) in view of Sakamoto, U.S. Patent No. 5,594,463 (*Sakamoto*). Claim 3 stands rejected as being unpatentable over *Yeuan* and *Sakamoto* in view of Kondakov et al., U.S. Patent Application Publication 2004/0135749 (*Kondakov*). Claims 4 and 6-11 stand rejected as being unpatentable over *Yeuan* and *Sakamoto* in further view of Ishizuki et al., U.S. Patent Application Publication 2003/0122813 (*Ishizuki*). Claims 1 and 13 have been amended. The following remarks are respectfully submitted.

## Rejections under 35 U.S.C. § 103(a)

*Yeuan* does not teach or suggest replacing TFEL elements with OLED elements.

With regards to independent claims 1 and 13, the Examiner contends that while *Yeuan* does not expressly disclose the EL elements as being organic light-emitting diodes, the Examiner took official notice that it is well known in the art to use organic light emitting diodes as light emitting elements in a display apparatus. The Examiner contends therefore, that it would have been obvious to one of ordinary skill in the art to modify *Yeuan* to adopt organic light emitting diodes as EL elements included in the display.

The currently pending claims positively recite that the EL elements are organic LEDs, whereas the *Yeuan* reference is directed to organic thin film EL (TFEL) elements. These are specific elements with specific electrical properties. Not all light emitting elements can simply be swapped in and out with each other, and a person of ordinary skill in the art would understand this. The difference between organic LED elements and LED elements in general that are not thin film elements like the TFEL elements taught in *Yeuan* becomes particularly clear when reading the introduction of the *Yeuan* reference. As disclosed in column 1, lines 38 to 50,

*Yeuan* discloses that, contrary to LEDs, TFEL elements have a high and variable forward voltage and a high parasitic capacitance. As such, a matrix of TFEL elements in a common cathode configuration causes severe driving problems, as the response time of the TFEL elements is too high. Thus while the common cathode configuration is suitable for LED elements that are not thin film elements, *Yeuan* teaches that the common cathode configuration is not well suited for TFEL elements. *Yeuan* therefore indicates that a common cathode configuration is an acceptable configuration for non-thin film LED elements. Further *Yeuan* discloses other accommodations, in addition to switching to a common anode configuration, in order to overcome problems with the parasitic capacitance accompanying the TFEL that are not applicable or a concern for an LED. Applicants therefore contend that TFEL and organic LED elements are electrically different and due to those differences and that *Yeuan* does not teach or suggest replacing one with the other, it would not have been obvious to one of ordinary skill in the art at the time of the invention to adopt organic light emitting diodes as opposed to the thin film electroluminescent elements for the *Yeuan* reference. Nor does *Yeuan* teach the configuration shown therein for an element except for thin film TFELs. The claims of *Yeuan* even claim the thin film elements.

*Yeuan* in view of *Sakamoto* does not teach or suggest measuring voltage drops across *each individual* element for adjustments to a power supply.

With regard to claim 1, the Examiner contends that *Yeuan* teaches a method for controlling an electroluminescent display comprising a plurality of EL elements having an anode and a cathode, being arranged in a common anode configuration, where a current source is arranged between the individual cathode of the EL elements and ground, and the anodes of the EL elements are electrically connected in common to a positive power supply. The Examiner further contends that *Sakamoto* teaches a display apparatus where a power supply is adjusted as a function of a voltage drop measured across one of the EL elements. *Sakamoto* discloses measuring the voltage drop across a specific EL element. In column 4, lines 48 through 55,

*Sakamoto* discloses measuring the voltage across an EL element in the central portion of the matrix of EL elements. The Examiner contends that measuring the voltage drop across this EL element or measuring the voltage drop across a current source as claimed in the present application is a matter of design choice as both work equally well to measure the voltage drop.

Although there might be a temptation to argue that measuring the voltage drop across the EL element is equivalent to measuring the voltage drop across the current source, it is of particular importance to keep in mind that by measuring the voltage drop across the current source as recited in the claims, only one voltage measuring device need be provided for each cathode line, while still allowing for the measurement of the voltage drop across each LED individually as claimed. Such a limitation cannot simply be ignored and that limitation is not taught or suggested by *Sakamoto*. The method for measuring the individual voltage drops across the LEDs is disclosed in the present application, particularly in the paragraph beginning on page 13, line 7 and concluding on page 14, line 11. Briefly, the individual voltages may be obtained by closing the switches on each of the column lines and then closing each row line switch individually, as can be seen at the left in the reproduction of Figure 2 of the present application. For example to measure the voltage across element 212d, switches for Column Line A and Row Line 2 would be closed, and the voltage measured across the current source 214a would represent the voltage drop across the element 212d. In this manner, the voltages may be measured quickly and efficiently. The power supply may then be adjusted based on the worst-case LED. Claims 1 and 13 have

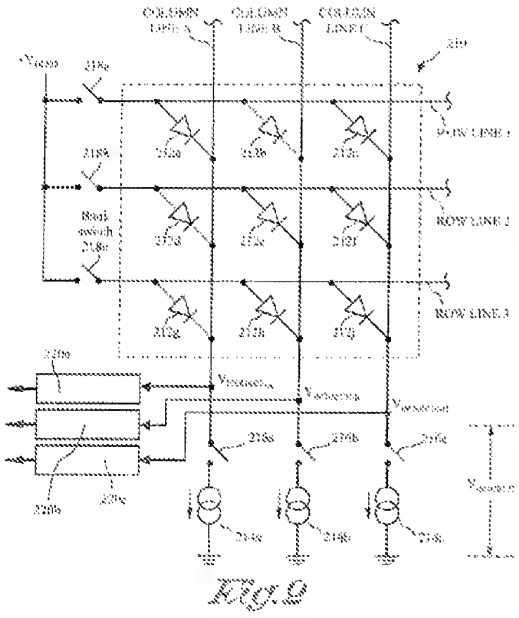
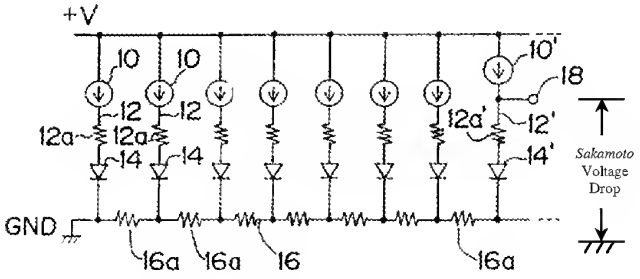


Fig. 2

been amended to more clearly recite voltage measurements across multiple individual LEDs to adjust the power supply.

It is apparent that the *Sakamoto* configuration does not allow for measuring the voltage drop across individual LEDs because there is only one voltage measuring device provided across one LED 14' the entire length of the corresponding cathode. Indeed, when measuring or estimating the voltage drop across the LEDs as represented in Figure 1 from *Sakamoto,* reproduced below, it is important that all LEDs connected to a common cathode are turned on. LEDs that are not illuminated will not contribute to the current flowing through the cathode and will therefore not affect the voltage measurement. In order for *Sakamoto* to be able to obtain the voltage drops across each of the EL elements as is possible with the present application, *Sakamoto* would need to measure the voltage drop across each of the EL elements thereby requiring multiple measuring devices, one for each EL element. *Sakamoto* does not teach the ability to measure voltage drops of individual LEDs by using a single measurement device, as does the present invention.




Also, measuring the voltage across a single EL element in parallel with other EL elements as taught by *Sakamoto* and shown above will produce a different voltage than measuring the individual voltages across the current sources at the individual cathodes of each of the elements as disclosed and claimed in amended claims 1 and 13. Because *Sakamoto* and the present invention are producing distinctly different voltage measurements, it would not be a matter of design choice, as indicated by the examiner, to measure across the electroluminescent

element or the current source. Therefore *Sakamoto* does not teach or suggest certain elements of the claims that are also missing from *Yeuan*.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. Because *Yeuan* as modified by *Sakamoto* does not teach or suggest all of the limitations in claims 1 and 13, Applicants assert that the claims are not obvious under section 103(a) and respectfully request that these rejections be withdrawn.

Furthermore *Sakamoto* teaches a matrix of electroluminescent elements in a common cathode configuration as illustrated in FIG. 3 of *Sakamoto*. *Yeuan* distinctly teaches away from the common cathode configuration as it is problematic with the thin film electroluminescent elements (TFEL) used. Additionally, *Sakamoto* teaches individual current sources with each element (FIG. 1 reproduced above), which would change the circuit in *Yeuan* rendering *Yeuan* inoperable. Therefore, modifying *Yeuan* with *Sakamoto* would render the base reference *Yeuan*, inoperable. This is certainly not a path that would be taken by a person of ordinary skill in the art. For these reasons, Applicants contend that there is no motivation to combine *Yeuan* and *Sakamoto* and therefore the rejections for claims 1 and 13 should be withdrawn.

Dependent claims are also patentable over *Yeuan* modified by *Sakamoto*.

Because claims 2 and 5 depend from independent claim 1, Applicants submit that these claims are also patentable for at least the same reasons discussed above. Furthermore, these claims recite unique combinations of elements not taught or suggested by *Yeuan* modified by *Sakamoto*.

The Examiner contends that claim 3 is unpatentable over *Yeuan* and *Sakamoto* as applied to claims 1, 2, 5 and 13 above, and in further view of *Kondakov*, which supplies the teaching that the power compensation is to be performed periodically. Claim 3 depends from independent claim 1, which is patentable over *Yeuan* modified by *Sakamoto*, and thereby

contains all of the limitations therein. The addition of the *Kondakov* reference does not teach or suggest the ability to measure the voltage drops across each individual LED element. Applicants therefore submit that this claim is also patentable for at least the same reasons discussed above. Accordingly, Applicants request that this rejection be withdrawn.

The Examiner contends that claims 4, 6, 7, 8, 9, 10, and 11 are unpatentable over *Yeuan* and *Sakamoto* as applied to claims 1, 2, 5, and 13 above in further view of *Ishizuki*. Claims 4 and 6 through 11 depend from independent claim 1, which is patentable over *Yeuan* modified by *Sakamoto*, and include all of the limitations therein. The addition of the *Ishizuki* reference does not teach or suggest the ability to measure the voltage drops across each individual LED element. Applicants submit these claims are also patentable for at least the same reasons discussed above. Furthermore, these claims recite unique combinations of elements not taught or suggested by the references. Therefore, Applicants respectfully request that these rejections be withdrawn.

## Conclusion

Applicants have made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing remarks given herein, Applicants respectfully believe this case is in condition for allowance and respectfully requests allowance of the pending claims. If the Examiner believes any detailed language of the claims requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Applicants are of the opinion that no additional fee is due as a result of this Amendment. Applicants are also of the opinion that a two-month extension of time is due with this Amendment. Payment of all charges due for this filing is made on the attached Electronic

Fee Sheet. If any additional charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Respectfully submitted,

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